

Key Concepts:

Inductive reasoning is when you use an _____ to make a generalization about the pattern.

An _____ is one where each term is found by _____ the same amount from term to term (common difference).

A _____ is when you _____ by the same number from term to term (common ratio).

Formula for an arithmetic sequence:

Formula for finding the sum of consecutive terms in an arithmetic sequence:

Formula for a geometric sequence:

Example 1: Determine whether the sequence is arithmetic, geometric, or neither. If it is arithmetic, write the common difference. If it is geometric, write the common ratio. Then, if possible, find the next four terms of the sequence.

a. 2, -4, 6, -8, ...

b. 7, 14, 28, 56, 112, ...

c. 1.5, -0.5, -2.5, -4.5, ...

d. 1, 6, 36, 216, ...

Example 2: The first four terms of an arithmetic sequence are given. Find the required term and sum.

a. 8, 11, 14, 17, ... Find the 10th term and the sum of the first 10 terms.

b. 27, 31, 35, 39, ... Find the 12th term and the sum of the first 12 terms.

Example 3: Draw the next three shapes in the pattern.

